IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent No.:	US 7,265,754 B2
Issued:	September 4, 2007
Patentees:	
Inventor:	Michael Brauss
Assignee:	Proto Manufacturing Ltd.
For:	METHOD FOR DISPLAYING MATERIAL CHARACTERISTIC INFORMATION
Application No.:	10/706,385
Filed:	November 12, 2003
Attorney Docket:	6926/78685
Customer No.:	22242

Confirmation No. 6371

This Certificate of Correction was electronically filed November 27, 2007 using the USPTO's EFS-Web.

REQUEST FOR CERTIFICATE OF CORRECTION OF PATENT FOR PTO MISTAKE (37 C.F.R. § 1.322(a))

Commissioner for Patents
P. O. Box 1450
Alexandria, Virginia 22313-1450

ATTENTION: Certificate of Correction Branch

Sir:

In accordance with 37 C.F.R. § 1.322, the above-specified Patentee, through his attorneys, respectfully request that a Certificate of Correction be issued for the above-referenced patent to correct the following errors.

LIST OF REFERENCES:

Page 1, Column 2, line 2, insert "JR." after "Purcell" (Office Action dated November 1, 2005, page 2 List of references cited by examiner).

IN THE CLAIMS:

Claim 8, Column 25, line 60, delete "ones" and insert - - one - - therefor (from Amendment dated January 31, 2006, page 5, Claim 8, line 22).

Claim 11, Column 26, line 8, delete "ones" and insert - - one - - therefore (from Amendment dated January 31, 2006, page 6, Claim 11, line 9).

REMARKS

The above-requested changes represent errors which occurred during printing of the patent on the part of the Patent Office. Attached hereto is Form PTO/SB/44 incorporating the requested change.

In accordance with procedures set forth in the notice entitled "Expedited Issuance of Certificates of Correction When the Error is Attributable to the United States Patent and Trademark Office," Patentee submits herewith a copy of the Office Action dated November 1, 2005, and the Amendment dated January 31, 2006, so that this request can be processed without the patent file.

It is believed that issuance of a Certificate of Correction is appropriate and should be issued without expense to the patentee and such is respectfully requested.

Please send the Certificate to:

Stephen S. Favakeh, Esq.
FITCH, EVEN, TABIN & FLANNERY
120 S. LaSalle St., Suite 1600
Chicago, IL 60603

The Commissioner is hereby authorized to charge any additional fees which may be required in respect to this communication to Deposit Account No. 06-1135.

Respectfully submitted,

FITCH, EVEN, TABIN & FLANNERY

Dated: November 27, 2007

/Stephen S. Favakeh/
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PTO/SB/44 (09-07)
Approved for use through 08/31/2010. OMB 0651-0033
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.
(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 7,265,754 B2

APPLICATION NO.: 10/706,385

ISSUE DATE : September 4, 2007

INVENTOR(S) : Michael Brauss

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Page 1, Column 2, line 2, insert "JR." after "Purcell" (Office Action dated November 1, 2005, page 2 List of references cited by examiner).

Claim 8, Column 25, line 60, delete "ones" and insert - - one - - therefor (from Amendment dated January 31, 2006, page 5, Claim 8, line 22).

Claim 11, Column 26, line 8, delete "ones" and insert - - one - - therefore (from Amendment dated January 31, 2006, page 6, Claim 11, line 9).

MAILING ADDRESS OF SENDER (Please do not use customer number below):

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PATENT
Attorney Docket 78685 (6926)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Brauss, Michael
Appln. No.:	10/706,385
Filed:	November 12, 2003
For:	Method for Displaying Material Characteristic Information *(Amended)*
Group Art Unit:	2672
Examiner:	Eric V. Woods

Confirmation Number: 6371

CERTIFICATE OF MAILING

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to:
MAIL STOP:
Commissioner for Patents
P.O. Box 1450; Alexandria, VA 22313-1450.

1/31/06
Date

Timothy R. Baumann
Registration No. 40,502
Attorney for Applicant(s)

RESPONSE TO OFFICE ACTION

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Official Action of November 1, 2005, please amend the above-identified patent application as follows:

Amendments to the Title begin on page 2 of this paper.

Amendments to the Specification begin on page 3 of this paper.

Amendments to the Claims are reflected in the listing of claims which begins on page 4 of this paper.

Amendments to the Drawings begin on page 9 of this paper and include both an attached replacement sheet and an annotated sheet showing changes.

Remarks begin on page 10 of this paper.

An **Appendix** showing the amended drawing figures is attached following page 13 of this paper.

Amendments to the Title:

Please amend the title with the following:

~~System and~~ Method for Displaying Material Characteristic Information

Amendments to the Specification:

Please replace the paragraph that begins at page 18, line 20 of the Specification with:

Although only a single emitter and two sensors are shown, it will be understood by those skilled in the art that any number of emitters and sensors may be used. It will also be understood that the measurement system 106 may be stationary or it may mobile. In one example, the measurement system may be of the type described in co-pending application Serial No. 09/539,346, "X-Ray Diffraction Apparatus and Method," now U.S. Patent No. 6,721,393, which is incorporated herein by reference in its entirety. In another example, the measurement system may be of the type described in co-pending application Serial No.10/390,479 "X-ray Diffraction System and Method," now U.S. Patent No. 6,925,146, which is incorporated herein by reference in its entirety.

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently amended) A computer-implemented method for displaying graphical information indicative of a plurality of material characteristics for a portion of a part under test, the method comprising:

directing x-ray energy at the portion of the part under test;

detecting a single stream of diffracted ~~resultant~~ energy from the portion of the part under test, the single stream of diffracted ~~resultant~~ energy formed by interaction of the ~~directed~~ x-ray energy with the part under test, the single stream of diffracted energy being directly indicative of a plurality of first order material characteristics of the part under test;

analyzing the single stream of diffracted x-ray energy and determining a first material characteristic and a second material characteristic for the same portion of the part under test and from the same single stream of diffracted x-ray energy;

forming a first graph and a second graph ~~plurality of graphs~~ based upon the single stream of diffracted x-ray ~~resultant~~ energy, the first graph relating to the first material characteristic and the second graph relating to the second material characteristic ~~each of the graphs relating to a separate one of the plurality of material characteristics~~;

displaying the first and second ~~the plurality of~~ graphs in a manner that facilitates ~~substantially~~ simultaneous visual comparisons between the information contained in each of the ~~plurality of~~ graphs; and

determining by a human operator whether a relationship between the first and second material characteristics exists in the portion of the part under test that bears on a condition of the part under test based upon the simultaneous visual comparison afforded by the display of the first and second graphs.

2. (Currently amended) The method of claim 1 wherein the step of displaying the first and second graphs includes displaying the first and second graphs on a single screen.

3. (Cancelled)

4. (Currently amended) The method of claim 1 wherein displaying the first and second graphs includes displaying each of the first and second ~~plurality of~~ graphs using a common resolution and includes aligning the first and second graphs along a common axis to facilitate easy and accurate evaluation and comparison of the first and second ~~plurality of~~ material characteristics.

5. (Currently amended) The method of claim 1 wherein displaying the first and second graphs includes relating selected information in the first and second graphs to color intensity so that variations in the color intensity are based upon variations in the selected information and displaying the selected information using the color intensities for highlighting variations and differences in the first and second material characteristics.

6. (Currently amended) The method of claim 1 wherein displaying the first and second ~~plurality of~~ graphs includes displaying a three-dimensional graph and including selecting a two-dimensional portion of the three-dimensional graph for facilitating the evaluation of the material characteristic as a function of a position along an x-axis or y-axis of the graph.

7. (Currently amended) The method of claim 1 wherein displaying the first and second ~~plurality of~~ graphs includes displaying an isobar graph illustrating and highlighting differences and variations in the information included in the graph.

8. (Currently amended) The method of claim 1 wherein the displaying of the first and second graphs includes displaying a selected ~~ones~~ of the first and second graphs in real-time as the data ~~therefor~~ is obtained to allow for the efficient and timely evaluation of data by an

operator as part testing occurs.

9. (Currently amended) The method of claim 1 wherein detecting a single stream of diffracted energy ~~obtaining the data~~ includes obtaining ~~the data~~ diffracted energy for each of the first and second graphs at different points in time and wherein determining the first and second material characteristics comprises applying calculus operations and evaluation procedures on the data obtained at different points in time.

10. (Original) The method of claim 1 including obtaining data indicting a surface profile of the part under test for aiding in accurate positioning of a sensor.

11. (Currently amended) The method of claim 1 including rotating or focusing on a selected ones of the ~~plurality of~~ first and second graphs simultaneously for aiding an operator in the evaluation of the material characteristics of the device under test.

12. (Currently amended) The method of claim 1 wherein the step of detecting a single stream of diffracted ~~resulting~~ energy includes detecting the diffraction or attenuation of the directed energy.

13. (Cancelled)

14. (Currently amended) The method of claim 1 including selecting a point on a selected one of the first and second ~~plurality of~~ graphs, generating a report of the material characteristics for the point, and displaying the report along with the graphs to facilitate evaluation of the material characteristics at the point.

15. (Original) The method of claim 14 including selecting the characteristics from a group comprised of: stress, stress error, intensity ratio, average peak breadth, average full width at half maximum (FWHM), shear stress, stress tensor, error tensor, x- direction stress, y-direction stress, maximum shear, equivalent stress, hardness, grain size, dislocation density, plastic strain, percent plastic strain, percent cold work, phases, percent retained austenite, strain,

strain error, shear strain, strain tensor, x-direction strain, y-direction strain, and maximum strain.

16. (Original) The method of claim 1 wherein directing energy includes scanning the selected portion of the part under test from different directions to obtain accurate measurements of the material characteristics.

40. (New) The method of claim 1 wherein detecting the single stream of diffracted energy comprises detecting a single stream of raw diffracted energy having a single frequency.

41. (New) The method of claim 1 further comprising identifying a potentially defective portion of the part under test based upon the visual comparison.

42. (New) The method of claim 41 wherein the first material characteristic is stress and the second material characteristic is shear stress and wherein identifying a potentially defective portion of the part under test comprises determining that the part is potentially defective because the stress and shear stress are uniformly high in the same portion of the part under test as determined by the substantially simultaneous visual comparison of the first and second graphs.

43. (New) The method of claim 41 wherein the first material characteristic is stress and the second material characteristic is error, and further comprising determining the intensity ratio and peak breadth from the single stream of diffracted energy, displaying the intensity ratio in a third graph and the peak breadth in a fourth graph, and wherein identifying a potentially defective portion of the part under test comprises determining that the part is potentially defective because the stress is high in a portion of the part under test and the error, intensity ratio, and peak breadth vary substantially in the same portion of the part under test as determined by the substantially simultaneous visual comparison of the first, second, third, and fourth graphs.

44. (New) The method of claim 41 wherein the first material characteristic is stress

and the second material characteristic is error, and further comprising determining the intensity ratio and peak breadth from the single stream of diffracted energy, displaying the intensity ratio in a third graph and the peak breadth in a fourth graph, and wherein identifying a potentially defective portion of the part under test comprises determining that the part is acceptable because the stress is high in a portion of the part under test and the error, intensity ratio, and peak breadth are low in the same portion of the part under test as determined by the substantially simultaneous visual comparison of the first, second, third, and fourth graphs.

45. (New) The method of claim 41 wherein the first material characteristic is stress as measured at a first sensor and the second material characteristic is stress as measured at a second sensor and wherein identifying a potentially defective portion of the part under test comprises determining that the part is potentially defective because the stress as measured at the first sensor is substantially different from the stress as measured at the second sensor as determined by the substantially simultaneous visual comparison of the first and second graphs.

46. (New) The method of claim 1 further comprising forming a third graph based upon a mathematical operation performed between the first and second graphs.

47. (New) The method of claim 46 wherein forming a third graph comprises forming a third graph from a mathematical operation, the mathematical operation being a subtraction operation.

Amendments to the Drawings:

The attached sheets of drawings include FIGs. 1-13. The sheets replace the drawings previously submitted on April 8, 2004. These sheets are intended to comply with the request of the Office Action to provide an entire set of corrected drawings and to correct two minor typographic errors in FIGs. 6 and 11. Both replacement sheets and annotated sheets showing the changes are attached.

Remarks

Claims 1-16 are pending in the present application and stand rejected. The Office Action objected to the drawings on various grounds. The Office Action also objected to a "preliminary amendment" allegedly filed on August 27, 2004 and required that the mention of color drawings made in this amendment be withdrawn. In addition, the Office Action stated that the specification contained a list of references that allegedly should have been submitted in an IDS.

Furthermore, the Office Action rejected claims 1-12 under 35 U.S.C. 112 second paragraph for use of the term "substantially." Claims 1 and 12-16 were rejected under 35 U.S.C. 112, first paragraph, as non-enabling. Claims 1-5, 8, 11, 12, and 16 were also rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,895,439 to Fisher ("the Fisher patent") in view of U.S. Published Application 2005/0035967 to Joffrain ("the Joffrain application"). Claim 6 was rejected under 35 U.S.C. 103(a) as unpatentable over Fisher in view of Joffrain in further view of U.S. Patent No. 6,707,454 to Barg ("the Barg patent"). Claim 7 was rejected under 35 U.S.C. 103(a) as unpatentable over Fisher and Joffrain and in further view of U.S. Patent No. 4,812,976 to Lundy ("the Lundy patent"). Claim 9 was rejected under 35 U.S.C. 103(a) over Fisher in view of Joffrain and in further view of U.S. Published Application 2003/0208323 to Hao ("the Hao application"). Claim 10 was rejected under 35 U.S.C. 103(a) as unpatentable over Fisher in view of Joffrain and in further view of U.S. Patent No. 6,505,140 to Bachrach. Claims 1 and 13 were rejected under 35 U.S.C. 103(a) over U.S. Published Application 2005/0154563 to Hassler ("the Hassler application") in view of Joffrain. Claim 13 was rejected over Fisher and Joffrain in further view of Hassler. Claims 14 and 15 were rejected under 35 U.S.C. 103(a) as unpatentable over Fisher and Joffrain in further view of U.S. Published Application 2003/0182069 to Banes ("the Banes application"). Finally, claims 1-2 were rejected under 35 U.S.C. 103(a) over U.S. Published Application No. 2004/0260178 to Kahn ("the Kahn application") in view of U.S. Patent No. 5,952,576 to Schwarz ("the Schwarz patent").

The rejections, as they may apply to the claims presented herein, are respectfully traversed.

At the outset, the Applicant by way of the undersigned attorney wishes to thank the Examiner for the interviews on December 7, 2005 and January 30, 2006 conducted for this application. In accordance with the requirements of 37 CFR 1.133(b) and the Manual of Patent Examining Procedure (MPEP) §713.04, the following written statement of the reasons presented at the interviews as warranting favorable action is provided.

Present at the personal interview of December 7, 2005 were Examiners Eric V. Woods and Almis Jankus, and the Applicant's attorney Stephen Favakeh. The Applicant provided an amended set of proposed claims to the Examiner for consideration. The Examiner stated the amended set of proposed claims was allowable over the Fisher and Joffrain combination as well as the Kahn and Schwarz combination because the Applicant's system used x-ray diffraction techniques and not eddy current measurement techniques (as taught by Fisher) or sonograms (as taught by Kahn and Schwarz).

As for the Hassler and Joffrain combination, it was agreed that x-ray diffraction techniques are distinguishable in producing resultant energy inherently including first-order material characteristic information. As described in the application, this information relates to desired first order material characteristics such as strain or grain size. In contrast, the Hassler reference teaches the use of X-ray computer tomography (CT) techniques to obtain second order material characteristic information (i.e., density). Second order information requires further analysis in order to obtain first-order material characteristic information. It was agreed that if the Applicant amended the claims to include the recitation of first order material characteristic information, the claims would be allowable over the Hassler and Joffrain combination.

Accordingly, a new set of proposed claims was sent to the Examiner on January 26, 2006 amended to reflect the subject matter agreed as distinguishing the relied upon art. This new set of amended claims (also reproduced and set forth in this response) was discussed in the telephonic interview of January 30, 2006. Present at this interview were Examiner Eric Woods and the Applicant's attorneys Stephen Favakeh and Timothy Baumann. During the interview, it was agreed that the new set of proposed claims was allowable over the prior art of record.

The Applicant wishes to thank the Examiner for his indication of allowance afforded during the interview.

Turning now to the drawing objections, the Office Action objected to the drawings on various grounds. As requested in the Office Action, the Applicant has amended FIGs. 6 and 11 to correct two minor typographical errors. In addition, the Applicant herewith this response resubmits the entire set of figures as requested by the Office Action.

The Office Action also objected to the color drawings submitted by the Applicant and stated that language added to the specification (indicating the presence of color drawings) needed to be withdrawn since a Petition to Accept the Color drawings has yet to be granted. Separate from this Response, the Applicant will submit a new Petition (and/or any other needed materials) so that the Petition can be granted. Consequently, since the Applicant is awaiting the grant of the Petition, the cited language will not be withdrawn at this time.

The Office Action alleged that the drawings were incomplete and stated that "pages 10-11 of the specification state that many necessary elements are omitted." At pages 10-11 of the specification, the Applicant stated that "common but well-understood elements that are useful or necessary in a commercially feasible embodiment are typically not depicted in order to facilitate a less obstructed view of these various embodiments of the present invention." Thus, the Applicant stated that common elements that are useful or necessary in a ***commercially feasible*** embodiment are typically not shown for clarity purposes. Nevertheless, all required elements have been shown in the drawings in the subject application.

The Office Action stated that the specification contained a list of references that may need to be submitted in an IDS. Specifically, the Office Action stated that "applicant needs to submit the numbers of relevant copending applications (as note at page 18, lines 22-28) on an IDS under 37 CFR 1.97 and 1.98." The Applicant herewith submits a supplemental IDS citing these two applications, which have now issued as patents. Furthermore, the specification has been amended to reflect that these two applications have now issued as patents.

In view of the foregoing amendments and remarks, the Applicant respectfully requests that the application be allowed to issuance.

The Commissioner is hereby authorized to charge any additional fees which may be required in this application under 37 C.F.R. §§1.16-1.17 during its entire pendency, or credit any overpayment, to Deposit Account No. 06-1135.

Respectfully submitted,

Fitch, Even, Tabin & Flannery

Timothy R. Baumann
Registration No. 40,502

Date: January 31, 2006

Fitch, Even, Tabin & Flannery
120 South LaSalle Street, Suite 1600
Chicago, Illinois 60603-3406
Telephone: (312) 577-7000
Facsimile: (312) 577-7007

ANNOTATED SHEET SHOWING CHANGES

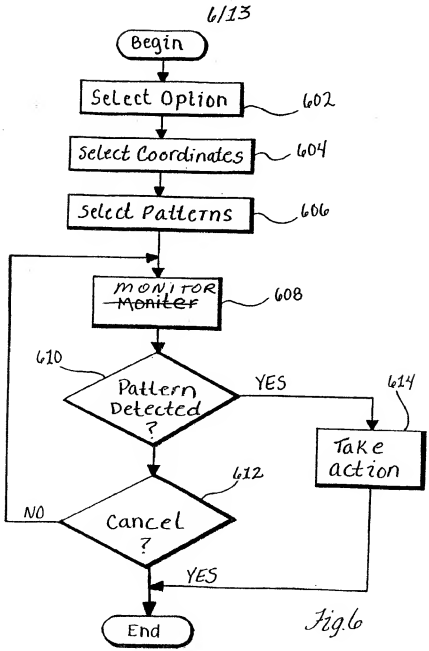

Fig.6

ANNOTATED SHEET SHOWING CHANGES

10/13

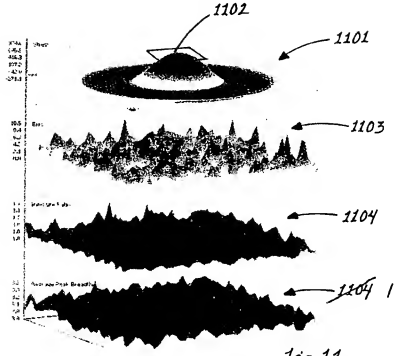

Fig. 11

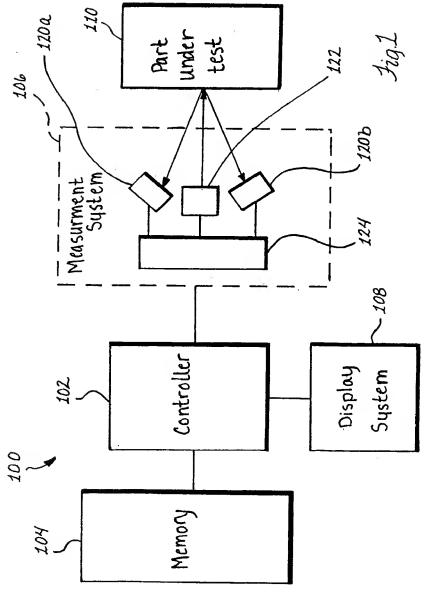

Fig 1

2/13

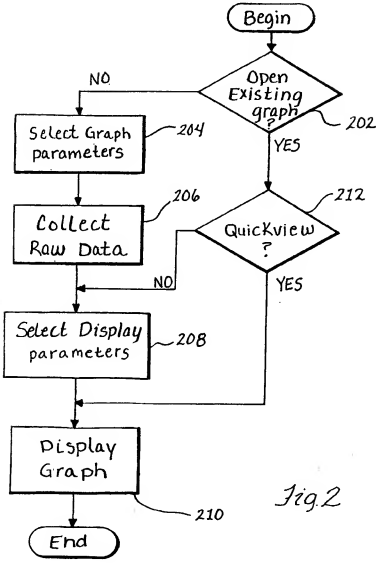
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Fig. 2

3/13

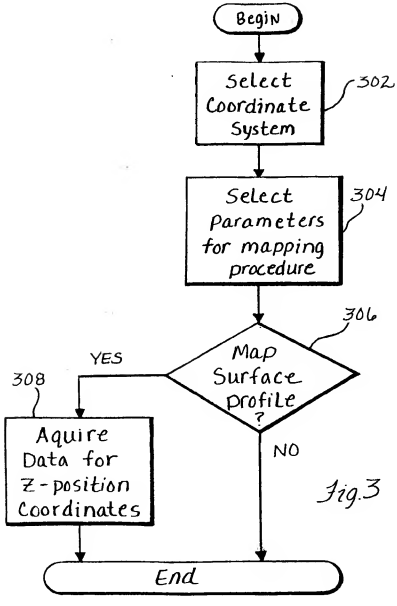
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Fig.3

4/13

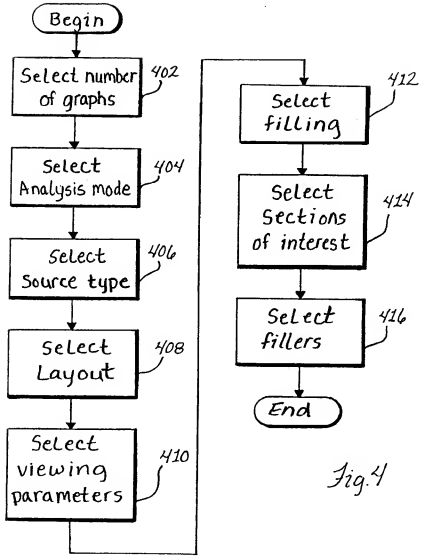
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Fig. 4

5/13

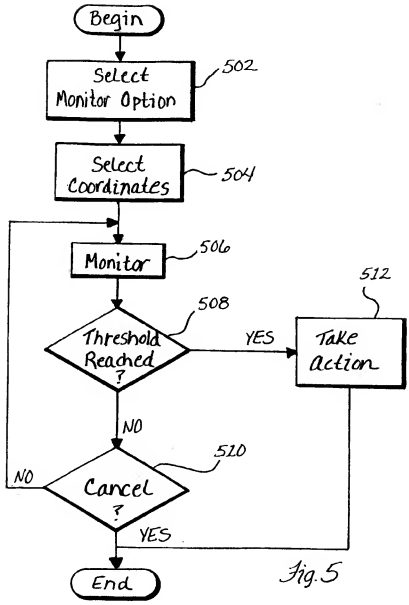
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Fig. 5

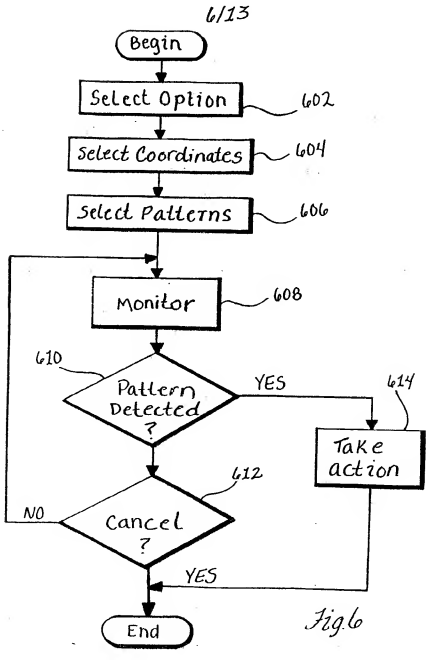
6/13
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Fig 6

REPLACEMENT SHEET

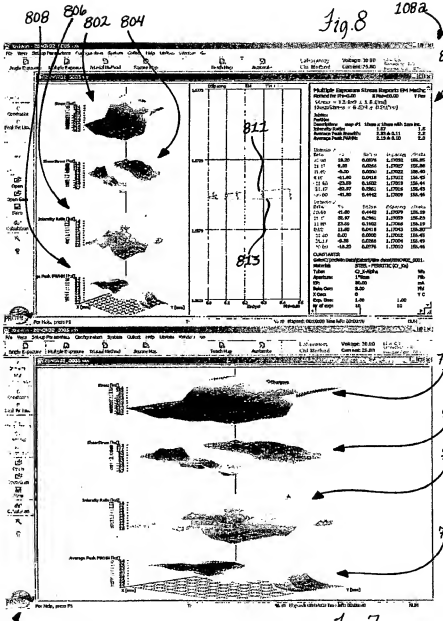
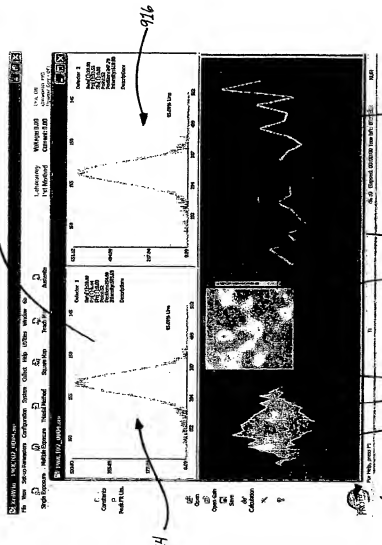
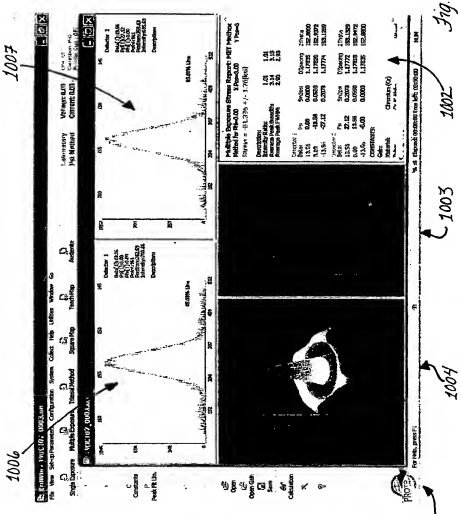


Fig. 8

Fig. 7

8/13





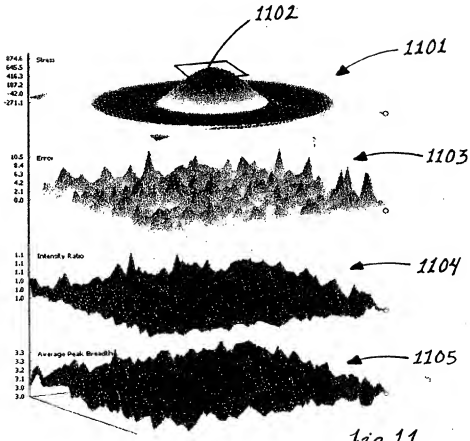


Fig. 11

11/13

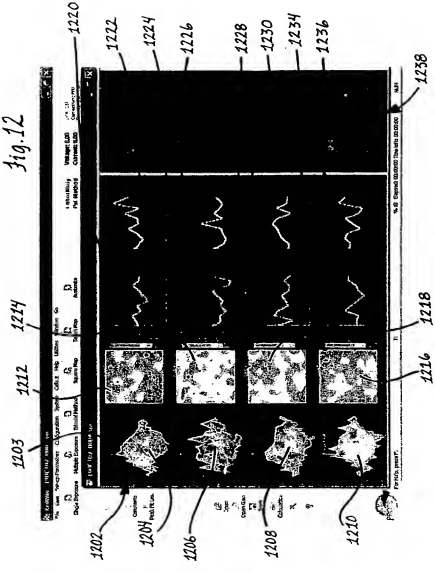


Fig. 12

12/13

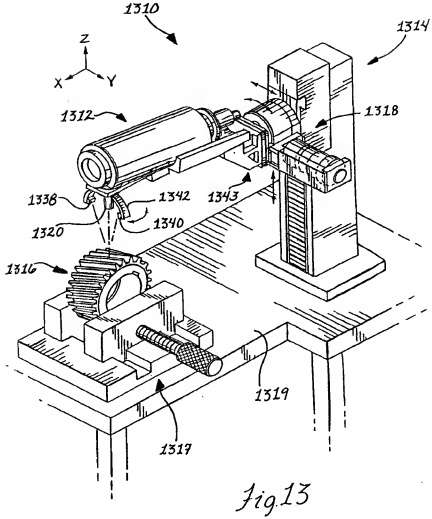

1310
1314
Z
X
Y
1312
1318
1338
1342
1343
1340
1320
1316
1319
1317

Fig. 13

13/13

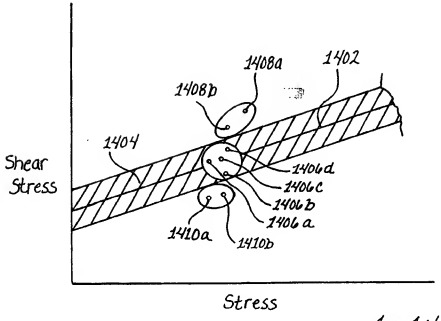

1408a
1402
1408b
1404
Shear
Stress
1406d
1406c
1406b
1406a
1410a
1410b
Stress

Fig.14

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10/706,385	11/12/2003	Michael Brauss	78685	6371

22242 7590 11/01/2005

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EXAMINER	
WOODS, ERIC V	
ART UNIT	PAPER NUMBER
2672	

DATE MAILED: 11/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/706,385	BRAUSS, MICHAEL	
	Examiner	Art Unit	
	Eric V. Woods	2672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 August 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-39* is/are pending in the application.

4a) Of the above claim(s) *17-39* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 December 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

New corrected drawings are required that are in compliance with 37 CFR 1.121(d) in this application because it is unknown what figures are which. There are either separate or duplicate drawings submitted in the Drawings packet (e.g. 23 pages of drawings, where there should only be 13). There are multiple versions of Figures 8-11. Applicant is advised to employ the services of a competent patent draftsperson outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

The drawings are objected to because in Figure 1, the drawing is too close to the bottom margin of the page.

The drawings are objected to under 37 CFR 1.83(b) because they are incomplete. 37 CFR 1.83(b) reads as follows:

> When the invention consists of an improvement on an old machine the drawing must when possible exhibit, in one or more views, the improved portion itself, disconnected from the old structure, and also in another view, so much only of the old structure as will suffice to show the connection of the invention therewith.

Specifically, pages 10-11 of the specification state that many necessary elements are omitted. However, this is not permitted, since 37 CFR 1.83(b) clearly indicates that such structures must be shown.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "1104" has been used to designate both the third graph and the fourth graph in Figure 11 (see also specification page 13, lines 19-23).

The drawings are objected to because the word 'Monitor' in Figure 6, element 606 is misspelled as 'moniter'.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Color photographs and color drawings are not accepted unless a petition filed under 37 CFR 1.84(a)(2) is granted, where the previously filed petition was **DENIED** on 16 August 2004. Any such petition must be accompanied by the appropriate fee set

forth in 37 CFR 1.17(h), three sets of color drawings or color photographs, as appropriate, and, unless already present, an amendment to include the following language as the first paragraph of the brief description of the drawings section of the specification:

> **The patent or application file contains at least one drawing executed in color. The Office upon request and payment of the necessary fee will provide copies of this patent or patent application publication with color drawing(s).**

Color photographs will be accepted if the conditions for accepting color drawings and black and white photographs have been satisfied. See 37 CFR 1.84(b)(2).

Specification

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

The preliminary amendment filed 27 August 2004 is objected to under 35 U.S.C. 132(a) because it introduces new and/or inaccurate matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material, which is not supported by the original disclosure, is as follows: that copies of the color drawings exist. The petition to include such drawings was **DENIED** on 16 August 2004. No new petition has been filed, and no change in the status of the petition has been entered in the file, regardless of applicant's request for reconsideration, **which must be filed as another petition as separate paper, not a request for reconsideration**. As such, the material is clearly inaccurate and must be removed. Finally, when the preliminary amendment was filed,

no separate petition fee was paid. Therefore, since no fee was supplied, any request for reconsideration was not processed and the reply is hereby held as insufficient and thusly any action by applicant now will be untimely and will not be considered. A new petition is required. See MPEP 1002.02(a) and (b), as well as 37 CFR 1.181.

Applicant is required to cancel the new matter in the reply to this Office Action.

Information Disclosure Statement

The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the examiner on form PTO-892 has cited the references, they have not been considered. Specifically, applicant needs to submit the numbers of relevant copending applications (as noted on page 18, lines 22-28) on an IDS under 37 CFR 1.97 and 1.98, unless applicant is specifically admitting that such materials are in fact relevant prior art that is eligible under 35 U.S.C. 102. If it is relevant to patentability, applicant has a duty under 37 CFR 1.56 and under MPEP 2001.04 and 2004 must submit material that is known that may be pertinent to patentability as per 37 CFR 1.97 and 37 CFR 1.98.

Election/Restrictions

Claims 17-39 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected group, there being no allowable generic or

linking claim. Election was made **without** traverse in the reply filed on 15 August 2005, as confirmed by a phone interview with Timothy Baumann (40,502) on 19 August 2005.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "substantially" in claim 1 is a relative term that renders the claim indefinite. The term "substantially" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Specifically, in light of applicant's figures in the instant application, it is unknown what is meant by this term, since the plurality of graphs would be shown on the screen or display simultaneously. Therefore, the use of the term 'substantially' is inapposite in this situation and renders the claim indefinite.

Claims 2-16 do not correct the deficiencies of the parent claim.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure that is not enabling. A computer, which is critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). Specifically, a computer is critical to the practice of the invention, as noted in the specification. Amending independent claim 1 on the first line of the preamble by inserting the words 'computer-implemented' between 'A' and 'method' on the first line can obviate this rejection.

Claims 12-16 are rejected as not correcting the deficiencies of their parent claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> **(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.**

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher et al (US 5,895,439 A) in view of Joffrain et al (US PGPub 2005/0035967 A1).

As to claim 1,

A method for displaying graphical information indicative of a plurality of material characteristics for a portion of a part under test, the method comprising: (Preamble not given patentable weight, since it only recites a summary of the claim and/or an intended use, and the process steps are capable of standing on their own; see Rowe v. Dror, 112 F.3d 473, 42 USPQ2d 1550 (Fed. Cir. 1997), Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165 (Fed. Cir. 1999), and the like.)

-Directing energy at the portion of the part under test; (Fisher directs energy at a sample, e.g. to detect eddy current, where this is shown in Figure 4 and in 4:1-15 – the AC magnetic field)(Joffrain operates multiple networked measuring devices as in Figure 2A/2B, where they monitor the unit or process under test, where such include signal generators, transducers, and the like [0134, 0143, 0147, 0250, etc.])

-Detecting resultant energy from the portion of the part under test, the resultant energy formed by interaction of the directed energy with the portion of the part under test; (Fisher Figure 4, the eddy current probe 24 picks up such induced eddy currents and in 4:1-15)(Joffrain teaches that multiple Measurements are taken [0111] from the resultant instruments, which can include oscilloscopes, and the like [0011-0013] for receiving signals)

-Forming a plurality of graphs based upon the resultant energy, each of the graphs relating to a separate one of the plurality of material characteristics; and (Fisher generates a plurality of data sets, since it performs the scan at various (x, y) positions across the device under test, and therefore shows such results in Figure 3b for

example. However, such results are used to generate complex data sets, such as that in Figures 5a and 5b)(Joffrain shows multiple outputs from the same device/unit under test gathered on the same screen, see for example Figure 6, 8H, 15D-15H, and the like) -Displaying the plurality of graphs in a manner that facilitates substantially simultaneous visual comparisons between the information contained in each of the plurality of graphs. (Fisher does not expressly teach the use of a plurality of graphs to allow simultaneous visual comparisons.)(Joffrain teaches displaying the results of such graphs on the same screen in different graphs in a simultaneous manner).

Fisher is directed to non-destructive testing (2:15-40) of a part (e.g. item on specimen scan positioner 22 in Figure 4). Fisher generates complex, multi-dimensional data sets as in Figures 1 and 2 and typically shows such data sets as three-dimensional objects (Figures 5A-5B) or overlaid scans (as in Figure 3B). Such data can include many different properties of material – e.g. electrical properties and the like (3:44-60), which can be used for detecting flaws and the like. The data sets produced can be complex and can be viewed in 3 dimensions. However, this method has certain flaws, namely that the operator must turn the view around to see all of the applied solid and similar limitations (8:17-42), and that the data can be superimposed with respect to position as in Figure 3b. Additionally, as noted in the Abstract, the three-dimensional solid is generated with the third-dimension being the orthogonal distance between the points, not the actual x and/or y distances. Therefore, it would be desirous if the operator could see at least an x-y position plot of the various data points, two or more three-dimensional views with only the x or y eddy current differences shown, or similar.

Finally, multiple sets of characteristics can be acquired from both eddy-current systems and other NDE systems (Abstract) and **different** characteristics (such as varying electrical characteristics) can be acquired that relate to the flaw (3:44-60). Such data would therefore require more than one three-dimensional figure to show the more than one characteristics acquired, since the eddy current solid only shows real and imaginary components versus distance. Indeed, Fisher admits in 8:15-33 that analysis of the three-dimensional solid is done as a function of position **along one physical coordinate**. Clearly, it would be advantageous to be able to view the solids along both physical coordinates in order to determine extent and size of such a flaw, as noted above, since both x and y position were varied.

Joffrain is directed towards a system that manages and controls many different real instruments, as in the Abstract, [0003-0012], Figure 2A, and the like. This system can take multiple measurements of a device simultaneously, so long as the device in question can communicate with the host PC or controller system.

For at least the above reasons, it would be obvious that having multiple graphs of the various characteristics measured by the eddy current probe on the screen at the same time would be valuable, and that multiple NDE and test systems could be used on a part simultaneously, since LabView can perform motion control (see element 138, Figure 2A) of the unit under test (e.g. a control stage, as in Fisher), so that multiple instruments, not simply the eddy current measuring device of Fisher, could be used to analyze and measure the results of applying a signal to the device under test. The system of Fisher could obviously be controlled by the system of Joffrain, and this would

allow at least the benefits noted above. Further, the system of Fisher could then show multiple two (or three) dimensional graphs on the screen simultaneously as in Joffrain to facilitate a better understanding of how all the parameters are related to each other and the like. Therefore, for at least the above reasons, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the systems of Fisher and Joffrain, since Fisher provides improved data visualization and Joffrain allows for better control and more simultaneous measurements. Joffrain also produces 3D surfaces [0371].

As to claim 2, Joffrain clearly teaches displaying such graphs on the same screen in Figures 6, 8G-8H, 15D-15F, and the like.

As to claim 3, clearly Fisher teaches gathering eddy current data as discussed above.

As to claim 4, Joffrain teaches in [0239-0247] the graphs are aligned with respect to time and each other on the same time-equivalent axis since they are signals. Such data could include the time-varying components of the eddy current generated by Fisher or many other types of signals, or the response of the sample across multiple ranges and instruments to the applied signal, which could be shown, or the like.

As to claim 5, Fisher clearly teaches that in Figures 5A and 5B as well as Figure 3B that the color is varied to illustrate variances in the measured data (8:9-16 for example, where shading is clearly intensity) and clearly the displays in Figures 5A and 5B highlight variations (flaw locations) in the material characteristics as recited.

As to claim 8, Joffrain teaches the use of such systems in real-time production environments [0106, 0116-0117, and the like].

As to claim 11, Fisher teaches that such three-dimensional surfaces are rotated t allow the user a better view (7:60-8:10). Therefore it would have been obvious that the user could rotate one or more three-dimensional objects simultaneously or with respect to each other if so desired.

As to claim 12, Fisher clearly teaches that the magnitude of the induced eddy current is measured, where Joffrain further teaches in [0193, 0293, 0400, and the like] that output signals are measured and graphed versus input signals such that the attenuation of the input signals can be measured and displayed.

As to claim 16, clearly Fisher measures the device in different x and y directions to obtain accurate measurements of its characteristics and the location of flaws.

Claim 6 is rejected under 35 U.S.C. 103(a) as unpatentable over Fisher in view of Joffrain as applied to claim 1 above, and further in view of Barg et al (US 6,707,454 B1).

Fisher and Joffrain do not expressly teach this limitation, but as noted in the discussion of claim 1, Fisher certainly collects data with respect to position, and allows the user to view the solids as a function of x or y position or time only, as in 8:17-32, where such information could be useful, particularly viewing the data in multiple directions at the same time or similar limitations, particularly if other types of data besides simply the eddy current were being obtained. Joffrain teaches that indeed, various types of data can be viewed simultaneously in multiple windows (see Figure 6

for example). There is certainly strong argument that such capability would be desired and that such data visualization **should** occur, as noted above, and that the references fairly suggest such.

Barg expressly teaches visualizing multiple data sets simultaneously in multiple windows, where in Figures 2-3, 8-10, and the like, a three-dimensional view is shown and the user can then control which two-dimensional views of the object (or other dimensional views where the number of dimensions can certainly be larger than 3 – for example, see 1:60-2:25, and it is directed generally to data visualization – see 1:20-25. Clearly the user can select the desired number of plots, variables, and the rest ((Barg clearly teaches, as noted above, that Barg teaches how analyzing such data from multiple perspectives across several views can be advantageous (3:20-38). The side graphs displayed as items 112 in Figure 2 are different dimensional views (e.g. two-dimensional) views of the three or higher order dimensional data sets – see also Figure 3, Figures 8-10, and 7:15-55, where clearly there are multiple of what Barg terms 'dimensional views,' and the user can control which are shown, specifically in 6:50-7:15, where the use can select desired dimensional views and the desired items within one window. Specifically, Barg allows the user to exclude any desired data columns or sets from the views (as in 16:50-17:20), and the user can also select the ROI using the select mode 8:47-55—select a portion of the three-dimensional multiscape view.) Barg is a system for visualizing multi-dimensional business process data, for example, as shown in (1:60-2:25), and is intended for use with any kind of multi-dimensional (process) data, as in 3:15-35, 34:1-64, and the like. Barg clearly teaches the existence

of multiple two-dimensional windows; where the user can select a region of interest using various methods, such as selection, exclusion, zooming, and the like. The two-dimensional data sets are interactive.

Motivation for combining Bar with Fisher and Joffrain may be found in the above discussions, where the ability to view multiple two-dimensional views of n-dimensional data and the three-dimensional view simultaneously facilitates trend analysis and visualization, for example (3:1-35), and Fisher is known to produce coarse data requiring interpolation to produce the solids in any case (8:9-16).

Claim 7 is rejected under 35 U.S.C. 103(a) as unpatentable over Fisher and Joffrain as applied to claim 1, and further in view of Lundy et al (US 4,812,976 A).

As to claim 7, the display of isoclines or isobars that highlight differences and variations in the graph is well known in the art. One example of this is Lundy Figures 6 and 7, where in Figure 5 such isoclines are highlighted, where 4:55-5:20, and they are taught to highlight variances in the graph and to identify potential flaws. Lundy is related to the same problem-solving area, that of using graphic visualization to find flaws that might otherwise not be found (5:15-20). Clearly, the fact that such highlighting allows problems that would not otherwise be found – and the emphasis in the graphic illustration of such isoclines – would help an operator in Fisher to better find such flaws, which provides motivation for combination. Therefore, it would have been obvious to modify Fisher in view of Joffrain to use that particular technique of Lundy.

Claim 9 is rejected under 35 U.S.C. 103(a) as unpatentable over Fisher in view of Joffrain as applied to claim 1, and further in view of Hao et al (US PGPub 2003/0208323 A1).

Joffrain and Fisher do not expressly teach this limitation. Hao teaches (Abstract) that forces exerted by objects in a physics-based visualization environment are computed by, amongst other things, using the gradient operator or similar functions [0040]. Hao allows for accurate visualizations of the interactions between objects, and further allows for better visualization of changing fields (e.g. the gradient operator, which is well known in the art to visualize changing fields and the like) [0030, 0008-0012]. Therefore, it would have been obvious to one of ordinary skill in the art to modify the system of Fisher/Joffrain to utilize the gradient operator, which is inherently a 'calculus operation.'

Claim 10 is rejected under 35 U.S.C. 103(a) as unpatentable over Fisher in view of Joffrain as applied to claim 1, and further in view of Bachrach (US 6,505,140 B1).

Fisher and Joffrain do not expressly teach this limitation, although Fisher teaches positioning a sample to take measurements and acquiring such measurements, as does Joffrain. Bachrach, which is directed to the same problem solving area, e.g. positioning an object under test, deriving measurements, and then visualizing the results, clearly teaches that it is advantageous to position a sensor within an optimal height of the surface (which is notoriously obvious in the art) and then to map the surface profile of the device so as to determine which areas are usable or functional or not. This is

clearly beneficial, as if certain areas or regions of the part are not usable or cannot be measured; the system saves time and potential damage by not examining such regions, and beneficially generates the most effective mapping by measuring the rest of the object at the optimum or similar (5:45-6:12). Clearly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize such techniques for at least the above reasons.

Claims 1 and 13 is rejected under 35 U.S.C. 103(a) as unpatentable over Hassler et al (US PGPub 2005/0154563 A1) in view of Joffrain.

A method for displaying graphical information indicative of a plurality of material characteristics for a portion of a part under test, the method comprising: (Preamble not given patentable weight, since it only recites a summary of the claim and/or an intended use, and the process steps are capable of standing on their own; see Rowe v. Dror, 112 F.3d 473, 42 USPQ2d 1550 (Fed. Cir. 1997), Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165 (Fed. Cir. 1999), and the like.)

-Directing energy at the portion of the part under test; (Hassler obtains data from passing x-rays through device for non-destructive testing – for example, [0005], which would constitute part of the means for providing a 3D representation – e.g. the X-ray obtained (CAT-style) data set in item 10 of Figure 1, as in [0013-0015])(Joffrain operates multiple networked measuring devices as in Figure 2A/2B, where they monitor the unit or process under test, where such include signal generators, transducers, and the like [0134, 0143, 0147, 0250, etc.])

-Detecting resultant energy from the portion of the part under test, the resultant energy formed by interaction of the directed energy with the portion of the part under test; (Hassler obviously detects the radiation it sends at a device – this is inherent in a CAT system as in [0013].)(Joffrain teaches that multiple Measurements are taken [0111] from the resultant instruments, which can include oscilloscopes, and the like [0011-0013] for receiving signals)

-Forming a plurality of graphs based upon the resultant energy, each of the graphs relating to a separate one of the plurality of material characteristics; and (Hassler clearly forms a plurality of two-dimensional representations containing non-normal areas (see item 48, Figure 4), where clearly these results would constitute a 'plurality of graphs')(Joffrain shows multiple outputs from the same device/unit under test gathered on the same screen, see for example Figure 6, 8H, 15D-15H, and the like)

-Displaying the plurality of graphs in a manner that facilitates substantially simultaneous visual comparisons between the information contained in each of the plurality of graphs. (Joffrain teaches displaying the results of such graphs on the same screen in different graphs in a simultaneous manner).

Joffrain is directed towards a system that manages and controls many different real instruments, as in the Abstract, [0003-0012], Figure 2A, and the like. This system can take multiple measurements of a device simultaneously, so long as the device in question can communicate with the host PC or controller system.

Hassler is directed to a system that generates and analyzes data from flaws, particularly that generated by x-ray systems for determining flaws in parts of the like.

However, the final results are not shown graphically, whilst Joffrain clearly shows graphical output.

For at least the above reasons, it would be obvious that having multiple graphs of the various characteristics measured by the eddy current probe on the screen at the same time would be valuable, and that multiple NDE and test systems could be used on a part simultaneously, since LabView can perform motion control (see element 138, Figure 2A) of the unit under test (e.g. a part in a 2-D x-ray system), so that multiple instruments, not simply the x-ray system of Hassler, could be used to analyze and measure the results of applying a signal to the device under test. The system of Hassler could obviously be controlled by the system of Joffrain, and this would allow at least the benefits noted above. Therefore, for at least the above reasons, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the systems of Hassler and Joffrain, since Hassler provides improved data visualization and Joffrain allows for better control and more simultaneous measurements. Joffrain also produces 3D surfaces [0371].

As to claim 13, clearly the system of Hassler uses x-rays, and detects them.

Claim 13 is rejected under 35 U.S.C. 103(a) as unpatentable over Fisher and Joffrain as applied to claim 1, and further in view of Hassler.

Joffrain and Fisher do not expressly teach the use of x-rays.

Hassler is directed to a system that generates and analyzes data from flaws, particularly that generated by x-ray systems for determining flaws in parts of the like.

However, the final results are not shown graphically, whilst Joffrain clearly shows graphical output. Clearly, the system of Hassler uses x-rays and detects them.

For at least the above reasons, it would be obvious that having multiple graphs of the various characteristics measured by the eddy current probe on the screen at the same time would be valuable, and that multiple NDE and test systems could be used on a part simultaneously, since LabView can perform motion control (see element 138, Figure 2A) of the unit under test (e.g. a part in a 2-D x-ray system), so that multiple instruments, not simply the x-ray system of Hassler, could be used to analyze and measure the results of applying a signal to the device under test. The system of Hassler could obviously be controlled by the system of Joffrain, and this would allow at least the benefits noted above. Therefore, for at least the above reasons, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the systems of Hassler and Joffrain, since Hassler provides improved data visualization and Joffrain allows for better control and more simultaneous measurements. Joffrain also produces 3D surfaces [0371]. Finally, the system of Hassler would another complement to the system of Fisher to allow two different types of NDE systems to be used for testing purposes.

Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as unpatentable over Fisher in view of Joffrain as applied to claim 1, further in view of Banes et al (US PGPub 2003/0182069).

As to claim 14, Fisher and Joffrain do not expressly teach generating a report of the material characteristics of a unit or device under test. Banes clearly teaches that generating reports and/or graphical representations of such data is useful [0016], as is well known in the art. Banes is directed to the same problem solving area that of measuring the characteristics of a device or unit under test and visualizing the results, in this case in report format. This is well known in the art, and clearly having such results in graphical or report format would be prima facie useful such that the end results of such a system could be stored. Therefore, for at least the above reasons, it would have been obvious to modify Fisher in view of Joffrain to generate such reports of material and/or device properties as per Banes.

As to claim 15, clearly the system of Banes measures the mechanical properties of whatever it is testing [0016-0017], which can include stress, true stress, true strain, and all sorts of properties similar to that group listed in claim 15 [0045]. It would have been obvious that an electronic device could be so tested for determining its overall mechanical characteristics, which would be useful to determine survivability, vulnerability to shaking (for satellite use) and the like.

Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kahn et al (US PGPub 2004/0260178 A1) in view of Schwarz (US 5,952,576 A).

As to claim 1,

A method for displaying graphical information indicative of a plurality of material characteristics for a portion of a part under test, the method comprising: (Preamble not

given patentable weight, since it only recites a summary of the claim and/or an intended use, and the process steps are capable of standing on their own; see Rowe v. Dror, 112 F.3d 473, 42 USPQ2d 1550 (Fed. Cir. 1997), Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165 (Fed. Cir. 1999), and the like.)

-Directing energy at the portion of the part under test; (Kahn clearly in Figure 2 generates ultrasound waves and sends them into the target part under test using beamformer 210 transmitting through transducer probe 205)(Schwarz Figure 1 directs multiple beams of ultrasound of different frequencies using drive transducers D_A - D_N at a part P under test, and receives such returned ultrasound waves with receive transducers R_A - R_B)

-Detecting resultant energy from the portion of the part under test, the resultant energy formed by interaction of the directed energy with the portion of the part under test; (Kahn receives such ultrasound waves via the beamformer [0029] and processes them) (Schwarz Figure 1 directs multiple beams of ultrasound of different frequencies using drive transducers D_A - D_N at a part P under test, and receives such returned ultrasound waves with receive transducers R_A - R_B)

-Forming a plurality of graphs based upon the resultant energy, each of the graphs relating to a separate one of the plurality of material characteristics; and (Kahn – Results of such data are shown simultaneously in Figure 6 [0106], where they are plotted on separate graphs within the same display area)(Schwarz shows such results in Figures 3A-3C)

-Displaying the plurality of graphs in a manner that facilitates substantially simultaneous visual comparisons between the information contained in each of the plurality of graphs. (Clearly, Kahn Figure 6 shows the graphs on the same screen, which fairly is "substantially simultaneous" for purposes of visual comparison)

Kahn clearly teaches a system that provides for all the limitations, but in the interests of facilitating prosecution since Kahn only applies to a fetus as an example (which examiner contends is "a part under test", since Office policy is to give claims their broadest reasonable interpretation (In re Morris, In re Hyatt, etc). However, in the interests of facilitating prosecution, and since Kahn does specify that his system can be used to derive images of any particular item [0121, 0004] and data from various methods, Schwarz is brought in to show that an ultrasound system can be used to test any of a variety of parts or devices for defects – see 1:5 – 2:4, which clearly provide evidence that improved speed can be achieved for scanning parts where simultaneous scans at different frequencies are used, which would also advantageously speed up the scans of Kahn, where both B-mode and other scans could take place simultaneously in such a manner (or multiple frequencies could be simultaneously tested, etc.). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was add certain functionality of Schwarz to Kahn.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric V. Woods whose telephone number is 571-272-7775. The examiner can normally be reached on M-F 7:30-4:30 alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Razavi can be reached on 571-272-7664. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Eric Woods

PRIMARY EXAMINER

October 21, 2005

Notice of References Cited	Application/Control No. 10/706,385	Applicant(s)/Patent Under Reexamination BRAUSS, MICHAEL	
	Examiner Eric V. Woods	Art Unit 2672	Page 1 of 2

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*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-4,812,976 A	03-1989	Lundy, Joseph R.	600/523
	B	US-5,684,945 A	11-1997	Chen et al.	714/20
	C	US-5,894,311 A	04-1999	Jackson, Jerry R.	345/440
	D	US-5,895,439 A	04-1999	Fisher et al.	702/36
	E	US-5,940,545 A	08-1999	Kash et al.	382/312
	F	US-6,243,615 B1	06-2001	Neway et al.	700/108
	G	US-2003/0031357 A1	02-2003	Wenzel et al.	382/154
	H	US-2004/0073477 A1	04-2004	Heyns et al.	705/010
	I	US-2004/0179012 A1	09-2004	Ingber et al.	345/440
	J	US-6,826,507 B2	11-2004	Kroboth et al.	702/127
	K	US-2005/0039170 A1	02-2005	Cifra et al.	717/125
	L	US-2005/0091012 A1	04-2005	Przytula et al.	703/002
	M	US-2005/0197806 A1	09-2005	Eryurek et al.	702/188

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*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Notice of References Cited	Application/Control No. 10/706,385	Applicant(s)/Patent Under Reexamination BRAUSS, MICHAEL	
	Examiner Eric V. Woods	Art Unit 2672	Page 2 of 2

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-5,506,955 A	04-1996	Chen et al.	714/26
	B	US-5,952,576 A	09-1999	Schwarz, James J.	73/579
	C	US-6,505,140 B1	01-2003	Bachrach, Benjamin	702/166
	D	US-2003/0126054 A1	07-2003	Purcell,, W. Richard JR.	705/36
	E	US-2003/0144868 A1	07-2003	MacIntyre et al.	705/1
	F	US-2003/0182069 A1	09-2003	Banes et al.	702/33
	G	US-2003/0208323 A1	11-2003	Hao et al.	702/41
	H	US-2004/0260178 A1	12-2004	Kahn et al.	600/437
	I	US-2005/0035967 A1	02-2005	Joffrain et al.	345/440
	J	US-2005/0154563 A1	07-2005	Hassler et al.	702/189
	K	US-			
	L	US-			
	M	US-			

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Index of Claims

Application/Control No.	Applicant(s)/Patent under Reexamination
10/706,385	BRAUSS, MICHAEL
Examiner	**Art Unit**
Eric V. Woods	2672

√	Rejected	–	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
=	Allowed	+	Restricted	I	Interference	O	Objected

Claim		Date	Claim		Date	Claim		Date
Final	Original	10/20/05	Final	Original		Final	Original	
	1	√		51			101	
	2	√		52			102	
	3	√		53			103	
	4	√		54			104	
	5	√		55			105	
	6	√		56			106	
	7	√		57			107	
	8	√		58			108	
	9	√		59			109	
	10	√		60			110	
	11	√		61			111	
	12	√		62			112	
	13	√		63			113	
	14	√		64			114	
	15	√		65			115	
	16	√		66			116	
	17	W		67			117	
	18	W		68			118	
	19	W		69			119	
	20	W		70			120	
	21	W		71			121	
	22	W		72			122	
	23	W		73			123	
	24	W		74			124	
	25	W		75			125	
	26	W		76			126	
	27	W		77			127	
	28	W		78			128	
	29	W		79			129	
	30	W		80			130	
	31	W		81			131	
	32	W		82			132	
	33	W		83			133	
	34	W		84			134	
	35	W		85			135	
	36	W		86			136	
	37	W		87			137	
	38	W		88			138	
	39	W		89			139	
	40			90			140	
	41			91			141	
	42			92			142	
	43			93			143	
	44			94			144	
	45			95			145	
	46			96			146	
	47			97			147	
	48			98			148	
	49			99			149	
	50			100			150	

Search Notes

Application/Control No.	Applicant(s)/Patent under Reexamination
10/706,385	BRAUSS, MICHAEL
Examiner	**Art Unit**
Eric V. Woods	2672

SEARCHED

Class	Subclass	Date	Examiner
345	440	10/20/2005	EW

INTERFERENCE SEARCHED

Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)

	DATE	EXMR
EAST (USPT,USPGPUB,USOCR, DERWENT,EPO,JPO,USOCR) – see attached search history	10/20/2005	EW